ATOMIC ENERGY newsletter®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
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Dear Sir:

Marketing rights in the Western Hemisphere to Boby electrodialysis stacks have been acquired by American Machine & Foundry Corp. from William Boby & Co., Ltd., Rickmansworth, England. Boby recently sold a stack to the Italian Comitato Nazionale per le Richerche Nucleari for experimental work in decontamination of nuclear effluents. It is believed the Boby stack will find increasing use in this and allied nuclear applications. (Other MANUFACTURERS' NEWS, p. 3 this LETTER.)

One day symposium on the development and potential industrial uses of nuclear reactors for the production of low-temperature process steam will be held by the USAEC at its Germantown, Md., headquarters Oct. 1, 1959. The symposium, to be non-secret, should be of interest mainly to people from industrial firms using low-temperature process heat, although others may find the agenda of interest. Further details may be obtained from the USAEC, Washington 25, D.C. (Other MEETINGS, COURSES, CONFERENCES, p. 5 this LETTER.)

The third U.S. nuclear powered submarine capable of firing the Polaris missile from a submerged position is scheduled for launching Oct. 3, 1959. The vessel, the Theodore Roosevelt, is being built at the Mare Island Naval Shipyard, Vallejo, Calif. Its launching will follow by eleven days the launching of the second Polaris-firing nuclear submarine, the Patrick Henry, from the Groton, Conn., yards of the Electric Boat division of General Dynamics Corp. Already launched is the first Polaris-firing nuclear undersea craft, the George Washington. (Other BUSINESS NEWS, p. 5.)

Net sales for six months ended June 30, 1959 for U. S. Radium Corp., Morristown, N.J., were $2,423,306, an increase of 28% over the $1,906,555 for first half of 1958. Net income was $99,707 or $1.32 per share, more than triple the $25,546 or 34¢ per share of last year's like period. The company manufactures radioactive products and phosphors; x-ray screens; dials, panels and nameplates; and allied products. (Other FINANCIAL NEWS, p. 5 this LETTER.)

Contract has been received by Babcock & Wilcox Co., New York, from C.A.M.E.N., research and training agency of the Italian Government, to supply the core and nuclear hardware for Italy's third nuclear research reactor. It will be of the pool type, designed to operate at 5000 kw capacity. Early 1961 operation is planned for the reactor and supporting facilities which will be used for the training of Naval Academy and University of Pisa engineering students. Site will be midway between the Academy in Livorno and Pisa. (Other CONTRACT NEWS, p. 2 this LETTER.)

Nuclear power station using plutonium fuel elements, and with an electrical capacity of 50 megawatts is planned by the Russian government, a group of visiting U.K. Atomic Energy Authority engineers and scientists were told. An experimental 5 thermal megawatt reactor using plutonium fuel elements, located at the Physical Institute of the Atomic Energy Commission, Obninsk, near Moscow, was visited by the group. Liquid sodium is used as coolant in this experimental reactor. (Other NEWS OUTSIDE THE U. S., p. 5 this LETTER.)

ATOMIC ENERGY CONTRACT NEWS...

BIDS ASKED:- Bids have been invited by the USAEC for rock crushing machines, conveyors, ore bins, tanks, and other equipment at the Government-owned uranium ore-buying station at White Canyon, Utah. The station has been closed since July 31, 1957. Original cost of the buying station and related sampling plant was $126,500. Value of that now on sale is about $86,000 as some of the equipment has already been disposed of. Further information may be obtained from the USAEC, Grand Junction, Colo.

CONTRACTS AWARDED:- Contract for the construction of the research reactor building and the radioactive materials laboratory of Union Carbide Nuclear Co., at Sterling Forest, near Tuxedo, N.Y., has been awarded Mahony-Troast Construction Co., Clifton, N. J. In addition to the building construction, work by Mahony-Troast also includes pouring high-density concrete for the stall and pool that will house the five megawatt nuclear reactor, as well as for the five cells in the radioactive materials laboratory to be used for remote-controlled radiation studies.

Construction of the metals process development building for the Ames Laboratory, (USAEC facility operated by Iowa State University, Ames, Iowa) will be done under a lump sum USAEC contract in the amount of $1,118,689 awarded W. A. Klinger, Inc., Sioux City, Iowa. The new building is to better enable Ames Laboratory to conduct metal process development on larger-than-laboratory scale and to evaluate commercial feasibility of any process developed. (Frank H. Spedding is director of Ames Laboratory, which since the wartime atomic energy program has investigated metals needed for nuclear work.)

Contract has been awarded Food Machinery & Chemical Corp., New York, by Department of the Army, to convert the USAEC's heavy water plant at Newport, Ind., into Army Chemical Corps facility for production of certain chemical agents. Food Machinery's contract totaled $13,500,000.

Vitro Engineering Co. will design and engineer a new facility at Hanford Works for the processing of commercial power reactor fuels under $4,300,000 contract awarded the firm by USAEC. Planned to be in operation by early 1961, the facility will have capacity to reprocess from 50 to 150 tons per year of fuel element materials (up to 5% U-235). It will be capable of handling fuel elements of all designs and shapes including oxide and alloy cores clad with aluminum, zirconium, and stainless steel. Elements will be received in shielded casks, stored in water environment, dismantled mechanically and chemically treated in preparation for processing by solvent extraction in existing Redox facilities. (These Redox facilities were originally designed by Vitro for the USAEC in 1949.)

Contract in the amount of $104,180 has been awarded Roehl Construction Co., Inc., Knoxville, by USAEC's Oak Ridge operations office for construction of road and water line to site of new $30 million experimental gas-cooled power reactor. The site, on the Clinch river, five miles south of Oak Ridge, recently was approved by Advisory Committee on Reactor Safeguards. (Facility is being designed by Kaiser Engineers, Oakland, Calif., and Allis-Chalmers Manufacturing Co. Oak Ridge National Laboratory is designing fuel elements; power lines and substation work is being done by Tennessee Valley Authority people.)

Contracts were signed last week in Washington by the USAEC with Philadelphia Electric Co. and General Dynamics Corp. to develop and construct a high temperature, gas-cooled nuclear power plant with over-all cost of approximately $40,000,000. Site will be in York County, Pa., northwest of Baltimore, on part of Philadelphia Electric's utility system. Scheduled for completion in 1963, capacity will be 40,000 ekw. Reactor to be used will be of the high temperature, helium-cooled, graphite-moderated, solid homogeneous type; system is designed to produce 1000 deg. F. steam and pressures of 1450 psi. The plant actually will be designed and built by High Temperature Reactor Development Associates, Inc., a non-profit research and development organization formed by Philadelphia Electric and 51 other utilities. Under the USAEC contract, the combine will provide $24,500,000 for design and construction. Fuel charges (worth $2 million) will be waived by the USAEC for first five years of the plant's operation. General Dynamics' contract calls for the company's General Atomic division, San Diego, to supply the reactor system which has been under theoretical and experimental development by GA (at its own expense) for the past two years. The USAEC will reimburse GA with up to $14,500,000 in research and development costs. GA will also supply the first five year's fuel element requirements. (Bechtel Corp. will be engineer-constructor of the plant; Westinghouse Electric will supply the plant's electric generating system.)

NEW PRODUCTS, PROCESSES, INSTRUMENTS...for nuclear lab & plant...

NEW PRODUCTS FROM MANUFACTURERS:- Automatic windowless chromatogram scanner, trade-named Scanogram II, simultaneously counts both sides of one or more continuous radiochromatogram strips up to 50-ft. long. It is said to be especially suited for counting tritium, carbon-14, and sulfur-35. In operation, the entire chromatogram strip is completely enclosed within the gas-filled scanner housing. Two facing gas-flow detectors accept collimated radiation from both sides of the strip and transmit the total activity to a recorder which can be automatically set to any one of 10 scanning speeds. --Atomic Accessories, Inc., Bellerose 26, N.Y.

New line of molded low-cost glove boxes feature leakproof, one piece construction. Side openings are 18-in. in diameter. --Manostat Corp., 24 N. Moore St., New York, N.Y.

Multi channel gauging system uses new type of radiation detector with useful range of one million to one. Applications for which the system was designed are ore, coal and grain handling systems in which an operator can control the amount of material being stored in holds, bins, or elevators over a considerable distance. Probes used are moisture sealed and said to be shock-proof, and contain a miniature ratemeter the output of which may be displayed on a meter that may be located up to two miles away. Other features are said to be temperature stability from 0 to 175 deg. F.; use of low cost non-shielded cable; fast response; and no digit or zero adjustment. --Tracerlab, Inc., Waltham, Mass.

Multiplier phototube type K1758 is 3-in. diameter unit for use in very low level radioactivity counting. Tube materials are said to be especially low in radioactive contaminators. Faceplate of tube is quartz. --Allen B. Du Mont Labs., Inc., Clifton, N.J.

New high-power electron accelerator, trade-named Dynamitron, provides in Model EA-K500 some 0.5 Mev with a 7.5 kw output at constant potential. High voltage is achieved by use of a cascaded rectifier driven in parallel from an rf oscillator at 300 Kc. This patented feature provides constant potential electrons at high beam currents. Suggested applications include irradiation of thin plastic films, coatings on wire, and synthetic textile fibers; gaseous and liquid chemical reactions; etc.--Radiation Dynamics, Inc., Westbury, L.I., New York.

PRODUCT NEWS:- Membrane filter, type AM-1, of Gelman Instrument Co., Chelsea, Mich., is said to entrap particles as small as 1 micron, with particles of 10 microns or above staying on the surface of the filter. The manufacturer points out that in analysis of radioactive particles, self-absorption of the sample is greatly reduced because the particles of interest stay on top of the filter and don't penetrate into a filter bed. The filter permits differentiating artifically produced radioactive aerosols from naturally occurring, smaller sized particles.

Deadline for submission to USAEC of uranium ore reserve data has been extended to Oct. 1, 1959 by the Commission, providing mine operators can justify their failure to submit data by Aug. 1, 1959, the original deadline. The Commission last May had asked for figures on uranium ore reserves developed as of Nov. 24, 1958 from mine operators who desired to be considered in the Commission's uranium concentrate procurement negotiations for the 1962-66 period.

Stationary four -die swager has been added to the precision metal forming equipment made by Fenn Manufacturing Co., Newington, Conn. An application in the nuclear field (where much Fenn equipment is now used) is swaging round tubing to a square. Here the tubing may be filled with required material; compaction of the material after swaging to a square is result of enormous compressive forces.

Although uranium ore mining in the Belgian Congo in 1958 was below the 1957 level, output was sufficient to fill current contracts of the Combined Development Agency and others. Production figures on uranium are not published by Union Miniere du Haut-Katanga, largest mining organization operating in the Congo, extracting copper and other minerals in addition to its uranium operations, However, total annual uranium production is believed to be about 300,000-tons.

MANUFACTURERS' LITERATURE:- Radioactivity at Work, No. 18, of Nuclear Science & Engineering Corp., Pittsburgh, Pa., discusses filter efficiency study the firm conducted for Westinghouse Air Brake Co.....Nuclear component manufacture is covered in article in Spring-Summer issue of Alco Review, available from Alco Products, Inc., Box 1065, Schenectady 1, N.Y....Fifth Edition of its Radiochemical & Technical Services catalog may be obtained from Tracerlab, Inc., Waltham 54, Mass.

NEW BOOKS & OTHER PUBLICATIONS...

Basic Data of Plasma Physics. Sanford C. Brown, associate prof. of physics, M.I.T. Fundamental data for an understanding of electrical discharges in gases; plasma in thermonuclear devices; etc. 336 pages. --John Wiley & Sons, Inc., 440 Fourth Ave., New York 16. ($6.50)

International Directory of Radioisotopes. Vol. I. Information on all radioisotopes which are sold or distributed by the 59 major suppliers in the world. 264 pages. --International Atomic Energy Agency, Vienna, Austria. ($3.50)

Atomic Radiation in the High School Science Class. Joe W. Tyson. Teaching manual for U. S. high schools. 87 pages. --Oldfriends' Books, Austin, Tex. ($1.65)

Introduction to Nuclear Power Costs. Arnold Rothman. Factors involved in nuclear power station cost determinations. 50 pages. --Simmons-Boardman Publishing Corp., 30 Church St., New York, N.Y.

Nuclear Engineering Handbook. Harold Etherington, editor-in-chief. Standard reference work. --McGraw-Hill Book Co., New York 16. ($25.00)

Boiling Water Reactor Study, Three Parts. Prepared by Ebasco Services, Inc., and General Electric Co., April, 1959. No. TID-8500. ($5.25).....Organic Cooled Power Reactor Study, Five Parts. Prepared by Bechtel Corp., and Atomics International, April, 1959. No. TID-8501. ($15.00).....Advanced Pressurized Water Reactor Study, Three Parts. Prepared by Stone & Webster Engineering Corp., and Combustion Engineering, Inc., April, 1959. No. TID-8502. ($10.75).....Heavy Water Moderated Power Reactor Plant, Two Parts. Prepared by Sergeant & Lundy and Nuclear Development Corp. of America, January, 1959. No. TID-8503. ($11.25).....USAEC Summary and Evaluation of Four Power Reactor Design Studies. August, 1959. No. TID-8504. (60¢) .....Costs of Nuclear Power. Work by USAEC's office of operations analysis and forecasting; covers stationary nuclear power plants designed primarily for generation of electricity. No. TID-8506. (50¢).....Guide to Shipment of U-235 Enriched Uranium Materials. Prepared by the USAEC in 1957. No. TID-7019. ($1.00). --Office of Technical Services, Washington 25, D.C.

NOTES:- A compilation of published articles and reports written by staff members of Oak Ridge National Laboratory may be obtained on request to the Laboratory, P.O. Box X, Oak Ridge, Tenn.....New catalog of courses in nuclear energy offered currently in OEEC countries is available from OEEC's European Nuclear Energy Agency, 38 Blvd. Suchet, Paris 16, France.....Nuclear Reactors; Built, Building or Planned in the U.S., covers commercial power, research, military, and other reactors as well as critical assembly facilities; No. TID-8200, 32 pages. It may be obtained from Technical Information Service Extension, USAEC, P.O. Box 62, Oak Ridge, Tenn. (n/c)

ATOMIC ENERGY PATENT DIGEST...

PATENTS ISSUED AUGUST 18, 1959 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:- (1) X-ray apparatus. Philip A. Duffy, inventor. No. 2,900,513 assigned to Westinghouse Electric Corp., E. Pittsburgh, Pa. (2) Well logging. Joseph C. Allen, Ralph C. Reynolds, inventors. No. 2,900,517 assigned to Texaco, Inc. (3) Radioactive battery. Alexander T. Weston, inventor. No. 2,900,535 assigned to Tracerlab, Inc.

PATENTS ISSUED AUGUST 18, 1959 to GOVERNMENTAL ORGANIZATIONS:- (1) Recovery of uranium values from residues. W. B. Schaap, inventor. No. 2,900,226 assigned to USEAC. (2) Selective separation of uranium from thorium protactinium and fission products by peroxide dissolution method. G. T. Seaborg, J. W. Gofman, R. W. Stoughton, inventors. No. 2,900,228 assigned to USAEC. (3) Uranium leaching and recovery process. L. A. McLaine, inventor. No. 2,900,229 assigned to USAEC. (4) Method of disintegrating refractory bodies. R. P. Larsen, R. C. Vogel, inventors. No. 2,900,230 assigned to USAEC. (5) Apparatus for charging a receptacle with a dense sublimate form of uranium chloride. P. H. Davidson, inventor. No. 2,900,237 assigned to USAEC. (6) Method of preparing a fuel element for a nuclear reactor. J. H. Handwerk, R. A. Bach, inventors. No. 2,900,263 assigned to USAEC. (7) Sheathed tube and apparatus and method of manufacture. L. A. Ohlinger, inventor. No. 2,900,315 assigned to USAEC. (8) Reactor control device. H. B. Kaufman, A. Weiss, inventors. No. 2,900,316 assigned to USAEC. (9) Method of producing isotopic methanes and partially halogenated derivatives. J. W. Frazer, inventor. No. 2,900, 424 assigned to USAEC. (10) Calutron tank. J. M. Cumming, L. R. Ludwig, inventors. No. 2,900,509 assigned to USAEC. (11) Radiography by gas ionization. E. L. Criscuola, D. T. O'Connor, inventors. No. 2,900,515 assigned to Navy Department.

ATOMIC ENERGY WORK...outside the U.S.

UNITED KINGDOM:- Two of the five nuclear power plant construction groups in the U.K. have decided to collaborate in building future nuclear generating stations. The two groups are the Nuclear Power Plant Co. (comprising C. A. Parsons, A. Reyrolle and others), and the Associated Electrical Industries-John Thompson Nuclear Energy Co. Purpose is to achieve economies in research, and in submission of bids (which can run £150,000 to £250,000) depending on the size of the power station). Joint bid is planned for the Dungeness, Kent, 500 megawatt nuclear power station, as well as for the 600 megawatt station at Sizewell, Suffolk. The collaboration of the two companies will extend into all fields of nuclear energy endeavor, including design and building of nuclear power plants for ships; construction of nuclear research reactors; and the investigation of thermonuclear reactions. (Nuclear Power Plant Co. is now building the 300 megawatt Bradwell, Essex, nuclear power station. The A.E.I.-John Thompson Nuclear Energy Co. is building the Berkeley, Glos., 275 megawatt station. Lord Chandos, chairman of A.E.I., recently stated the firm would lose at least £750,000 on building this Berkeley station.)

INDIA:- A $95 million, 250 megawatt nuclear power plant is planned for construction near Bombay, according to Homi J. Bhabha, chairman of the Atomic Energy Commission of India. Dr. Bhabha said it was hoped such a plant would be in operation by 1964. He stated that bids from qualified firms would be invited later this year.

MEETINGS, COURSES, CONFERENCES...

COURSES:- Two week course in nuclear safety is being offered by the USAEC beginning Sept. 21, 1959, at Oak Ridge, Tenn. The course will emphasize the prevention of criticality in the handling of fissionable materials. Full details may be obtained from the Commission at Oak Ridge.

CONFERENCES:- Oak Ridge National Laboratory's third conference on Analytical Chemistry in Nuclear Reactor Technology is scheduled for Oct. 26-29 at Gatlinburg, Tenn. Program is now available from the Laboratory; proceedings are to be subsequently published.

ATOMIC ENERGY FINANCIAL NEWS...

BERYLLIUM PRODUCER IN NEW FINANCING:- Brush Beryllium Co., Cleveland, has filed registration statement with the Securities and Exchange Commission for $6,500,000 of 15 year convertible subordinated debentures. A sinking fund is designed to retire 60% of the issue prior to maturity. Kuhn, Loeb & Co., and McDonald & Co., are listed as principal underwriters. Brush will use the proceeds to reduce its long-term indebtedness, for working capital, and to finance plant expansion including additional fabricating facilities at Elmore, Ohio, and new plant in California. The company is supplier of beryllium to the USAEC under current contracts as well as supplying commercial sources.

LARGE CREDIT GRANTED:- A twenty year credit of $135,000,000 at 4.5% has been granted EURATOM by the Export-Import Bank. Funds will be used mainly for the organization's nuclear power program.

DIVIDEND IN STOCK TO BE MADE BY INVESTMENT COMPANY:- Atlas Corp., investmen company with uranium mining concerns comprising $49,000,000 of its $79,313,000 in investments in majority companies has voted a 5% stock dividend on the common shares to be paid Oct. 15 to holders of record Sept. 15. Total assets of Atlas, which is headed by Floyd B. Odlum, as chairman, rose to $113,271,626 from $108,486,352 on June 30, 1958. Mr. Odlum noted in the company's mid-year report that all uranium subsidiaries have developed into "successful units of established earning power".

PEOPLE...in nuclear work...

David M. Checkley has been named president of Vitro Engineering Co., division of Vitro Corp. of America, New York, N.Y. He had been general manager of the industrial engineering division of Arthur G. McKee & Co., Cleveland, which he had established for McKee in 1954.

J. B. Adams has been appointed by the U. K. Atomic Energy Authority to be Director of a new establishment to deal with controlled thermonuclear research.

Sincerely,

The Staff,
ATOMIC ENERGY NEWSLETTER

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